

Notes on Some Scrophulariaceae from China

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ABSTRACT. A new species, *Veronica laxissima*, is described. Five new combinations, *Pseudolysimachion rotundum* (Nakai) Yamazaki subsp. *coreanum* (Nakai) Hong, *P. rotundum* subsp. *subintegrum* (Nakai) Hong, *P. linarifolium* (Pallas ex Link) Holub subsp. *dilatatum* (Nakai & Kitagawa) Hong, *Veronica himalensis* D. Don subsp. *yunnanensis* (Tsoong) Hong, and *Veronicastrum brunonianum* (Benth) Hong subsp. *sutchuenense* (Franchet) Hong, are proposed. One genus, *Sinobacopa*, 12 species, and 2 infraspecific taxa are reduced to synonymy.

During a recent visit to the herbaria A, GH, MO, NY, and US to study the Chinese Scrophulariaceae, it became obvious that the nomenclature of several taxa required adjustments. These adjustments, as well as a new species, are herein proposed to make the names available for the forthcoming account of the family in volume 18 of the *Flora of China*.

Bacopa Aublet, Hist. Pl. Guiane 1: 128. 1775.

Sinobacopa Hong, Acta Phytotax. Sin. 25: 393. 1987. Syn. nov. TYPE: *Sinobacopa aquatica* Hong.

Bacopa repens (Swartz) Wettstein in A. Engler & K. Prantl, Nat. Pflanzenfam. IV, 3B: 76. 1891.

Sinobacopa aquatica Hong, Acta Phytotax. Sin. 25: 395. 1987. Syn. nov. TYPE: China. Guangdong: "Hainan Island, Lingshui," 11 Aug. 1983, *Diao Zheng-su* 1715 (holotype, PE).

Authentic material and other collections of *Bacopa repens* were not available for study when the genus *Sinobacopa* and its single species, *S. aquatica*, were described.

Euphrasia matsudae Yamamoto, Trans. Nat. Hist. Soc. Taiwan 20: 107. 1930.

Euphrasia bilineata Ohwi, Acta Phytotax. Geobot. 2: 306. 1933. Syn. nov. TYPE: China. "Formosa: inter Pian-an-anbu et Shikayausha in Taichushu," *J. Ohwi* 2779 (holotype, KYO).

Euphrasia exilis Ohwi, Acta Phytotax. Geobot. 2: 306. 1933. Syn. nov. TYPE: China. "Formosa: in m. Dai-bu in Takaoshu," *J. Ohwi* 1809 (holotype, KYO).

Euphrasia masamuneana Ohwi, Acta Phytotax. Geobot. 2: 307. 1933. Syn. nov. TYPE: China. "Formosa: Noko-goe in Taichushu," *J. Ohwi* 3386 (holotype, KYO).

Euphrasia filicaulis Kimura, Acta Phytotax. Geobot. 13: 203. 1943. Syn. nov. TYPE: "Taiwan. Prov. Karenkō, Kita-gokanzan," 10 Sep. 1934, *M. Tagawa* 843 (holotype, KYO).

In his key to the species, Ohwi (1933) separated *Euphrasia exilis* primarily based on having leaves with only one tooth on each side, *E. bilineata* by having stems biserially pubescent, and *E. masamuneana* by having wider, ovate-orbicular leaves with more obtuse teeth. The original publication of *E. filicaulis* describes the corolla as 12 mm long and the leaves as glabrous, 2–3 times as long as wide, and with one or two teeth on each side. An examination of a large number of specimens of the taxa listed here under *E. matsudae* shows that the stems vary from erect to ascending or decumbent and from being pubescent throughout to basally pubescent and apically biserially pubescent or biserially pubescent throughout. Furthermore, the corolla length varies considerably (6–12 mm), and the leaves vary from orbicular to narrowly oblong, and the marginal teeth from 1 to 4 along each side. All of these characters exhibit continuous variation, and some vary even on the same individual. Therefore, it is better to treat these minor segregates as synonyms of *E. matsudae*.

Linaria thibetica Franchet, Bull. Soc. Bot. France 47: 11. 1900.

Linaria yunnanensis W. W. Smith var. *caerulea* Li, Bot. Bull. Acad. Sin. 3: 208. 1962. Syn. nov. TYPE: China. Yunnan: "Mount Peimashan, Mekong–Yangtze divide between Atungtze and Pungtzera," July 1923, *J. F. Rock* 10039 (holotype, US; isotype, PH).

Pseudolysimachion incanum (L.) Holub, Folia Geobot. Phytotax. 2, 4: 424. 1967.

Veronica xilinensis Y. Z. Zhao in Y. C. Ma, H. C. Fu & S. Chen, Fl. Intramongol. 5: 412. 1980. Syn. nov. TYPE: China. Nei Mongol: Xilingolemeng, Abahan-aerqi, 25 July 1979, *Liou Shu-run* 942 (holotype, HIMC).

The original description and illustration of the holotype of *Veronica xilinensis* clearly show no distinct differences from plants of *Pseudolysimachion incanum*.

Pseudolysimachion kiusianum (Furumi) Holub, *Folia Geobot. Phytotax.* 2: 424. 1967.

Veronica glabrifolia Kitagawa, *J. Jap. Bot.* 17: 238. 1941. Syn. nov. TYPE: China. "Manshuria. An-Tung," 7 Aug. 1931, *M. Kitagawa s.n.* (holotype, TI).

Pseudolysimachion rotundum (Nakai) Yamazaki subsp. ***coreanum*** (Nakai) Hong, comb. nov. Basionym: *Veronica coreana* Nakai, *Bot. Mag. (Tokyo)* 32: 228. 1918. TYPE: Korea. "Montibus Chirisan," *Tamezo Mori 281* (holotype, TI).

Pseudolysimachion rotundum (Nakai) Yamazaki subsp. ***subintegrum*** (Nakai) Hong, comb. nov. Basionym: *Veronica spuria* L. var. *subintegra* Nakai, *Bot. Mag. Tokyo*, 25: 62. 1911. TYPE: Korea. "Kyöng-san, Mulgeum," *T. Uchiyama s.n.* (holotype, TI).

Pseudolysimachion linarifolium (Pallas ex Link) Holub subsp. ***dilatatum*** (Nakai & Kitagawa) Hong, comb. nov. Basionym: *Veronica angustifolia* Fischer var. *dilatata* Nakai & Kitagawa, *Rep. First Sci. Exped. Manch. Sect.* 4(1): 54. 1934. TYPE: China. "Hsing-lung-t'ang, Pei-ying-fang," 27 Aug. 1933, *N. H. Kitagawa s.n.* (holotype, TI).

Striga lutea Loureiro, *Fl. Cochinch.* 1: 22. 1790.

Striga hirsuta Benth. var. *humilis* Benth. in A. de Candolle, 10: 503. 1846. Syn. nov. TYPE: India. "In Nilghiries," *Perrott s.n.* (holotype, G).

Veronica deltigera Wallich ex Benth. *Scrophul. Ind.* 45. 1835.

Veronica semiamplexicaulis Hong in Tsoong & H. P. Yang, *Fl. Reipubl. Popularis Sin.* 67(2): 404. 1979. Syn. nov. TYPE: China. "[Xizang: Nyalam Xian," Hou Shan, Zham, *Y. T. Chang & K. Y. Lang*] 4521 (holotype, PE).

Veronica semiamplexicaulis is conspecific with *V. deltigera*, a species distributed in eastern Nepal and southern Xizang (Tibet). The latter was confused with *V. lanosa* Royle ex Benth. and the boundaries between the two were first clarified by Montserrat (1955).

Veronica himalensis D. Don subsp. ***yunnanensis*** (Tsoong) Hong, stat. nov. Basionym: *Veronica himalensis* D. Don var. *yunnanensis* Tsoong in Tsoong & H. P. Yang, *Fl. Reipubl. Popularis Sin.* 67(2): 402. 1979. TYPE: China. "[Yunnan: Bijiang Xian, 4000 m.]" *H. T. Tsai 58169* (holotype, PE).

Veronica laxissima Hong, sp. nov. TYPE: China. E Sichuan: Chenkou (Tchen-keou-tin), *R. P. Farges 543* (holotype, US; isotype, PE).

Veronicae sutchuenensis Franchet affinis, sed a qua imprimis differt caulibus prostratis in dimidio inferiore, foliis minoribus et glabris, petiolis brevioribus, inflorescentiis longioribus glandulosisque, pedicellis longioribus, bracteis et calycibus glabris, stylis longioribus.

Perennials. Stems very slender, creeping and rooting at least in lower half, 10–15 cm long, ca. 0.5 mm diam., villous with multicellular hairs. Leaves more than 6-paired, evenly or almost evenly distributed, ovate-orbicular to oblong, glabrous on both surfaces, base rounded, margin crenulate, apex obtuse; lower leaves with petioles 2–3 mm long, small; upper leaves sessile, larger, 10–15 × 6–9 mm. Racemes 2, lax, one in axil of an upper leaf and the other in axil of uppermost leaf, 3–12 cm long; rachises and pedicels densely multicellular glandular; peduncle 3–6.5 cm long; flowers several, distant; bracts linear or linear-elliptic, 2–4 mm long, glabrous. Pedicels straight, 6–7 mm long. Calyx glabrous; lobes 4, elliptic or linear-elliptic, 2.5–3 × 1 mm. Corolla rotate, 7–8 mm diam., tube less than 0.5 mm long, anterior lobe oblong, other 3 lobes oblong-orbicular. Ovaries and young fruits strongly compressed, ciliate, lateral angles rounded. Persistent style 5–6 mm long. Mature fruits not seen.

Although no mature fruits have been seen, other characters indicate that *Veronica laxissima* is most closely related to *V. sutchuenensis* Franchet. *Veronica laxissima* is readily distinguished from that species by having creeping stems, smaller and glabrous leaves, shorter petioles, longer and glandular inflorescences, longer pedicels, glabrous bracts and calyces, and longer styles.

Veronicastrum brunonianum (Benth.) Hong subsp. ***sutchuenense*** (Franchet) Hong, comb. nov. Basionym: *Calorhabdos sutchuenensis* Franchet, *Bull. Soc. Bot. France* 47: 18. 1900. TYPE: China. Sichuan: "circa Tchen-keoutin," *Farges s.n.* (holotype, P).

Collections of *Calorhabdos sutchuenensis* from eastern Sichuan and western Hubei show mostly

winged stems and/or glabrous filaments, whereas those from the western range of the taxon have pubescent filaments and wingless stems. However, stem and filament characters are not always correlated with each other for material from eastern Sichuan and western Hubei, and some specimens are indistinguishable from those of *Veronicastrum brunonianum* subsp. *brunonianum*.

Veronicastrum villosulum (Miquel) Yamazaki, J. Fac. Sci. Univ. Tokyo 3, 7: 130. 1957.

Botryopleuron macrophyllum Li, Bot. Bull. Acad. Sin. 1: 21. 1960. Syn. nov. TYPE: China. Anhui: "Huang Shan," 550 m, 5 July 1925, R. C. Ching 4128 (holotype, UC; isotype, NY).

An examination of the type material of *Botryopleuron macrophyllum* reveals that it is indistinguishable from plants of *Veronicastrum villosulum* var. *villosulum*.

Veronicastrum villosulum (Miquel) Yamazaki var. ***parviflorum*** Chin & Hong in Tsoong & H. P. Yang, Fl. Reipubl. Popularis Sin. 67(2): 401. 1979.

Veronicastrum lungtsuanense M. Cheng & Z. J. Feng, Bull. Bot. Lab. North.-East. Forest. Inst. 8: 1. 1980. Syn. nov. TYPE: China. Zhejiang: "Lungtsuan, mount. Maoshan," 950 m, Sep. 1957, T. S. Chien 1525 (holotype, SZ).

The original description and illustration of the holotype of *Veronicastrum lungtsuanense* show no differences from material of *V. villosulum* var. *parviflorum*.

Veronicastrum formosanum (Masamune) Yamazaki, J. Fac. Sci. Univ. Tokyo 3, 7: 127. 1957.

Calorhabdos kitamurae Ohwi, Repert. Spec. Nov. Regni Veg. 36: 54. 1934. Syn. nov. TYPE: China. Taiwan. "Tarokokyo," M. Tatewaki & S. Kitamura s.n. (holotype, KYO).

Yamazaki (1957) transferred *Calorhabdos kitamurae* to *Veronicastrum* and distinguished it from *V. formosanum* based on its having rigid stems 30–60 cm high and lanceolate to oblong leaves 4–9 × 0.8–2.5 cm, instead of slender stems 15–30 cm high and linear-lanceolate leaves 4–9 × 0.3–0.5 cm. Li (1978) indicated that *V. formosanum* has sessile or short-petiolate leaves, simple stems, terminal inflorescences, and greenish to yellowish flowers, and that *V. kitamurae* has more distinctly petiolate leaves, branched stems, lateral inflorescences, and purplish flowers. None of the alleged differences listed by Yamazaki (1957) or Li (1978) is reliable in differentiating between the two species, and some specimens (e.g., Ching-I Peng 7281, 5873, both at HAST) exhibit the characters of both. Therefore, *V. kitamurae* is reduced to synonymy of *V. formosanum*.

A broader concept treating *Veronicastrum formosanum* as a subspecies of *V. caulopterum* (Hance) Yamazaki on the mainland of China is perhaps more practical because the differences separating the two are quantitative.

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